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Route To:

Subject: Eastside Forest Health Project on Peaks RD

To: District Ranger, Peaks RD, Coconino NF

On September 12, 2006, I visited the Peaks RD, Coconino NF, at the request of Andy Stevenson to discuss and evaluate potential forest health projects within the larger Eastside Fuels Reduction and Forest Health project area on the District. I describe in this report what bark beetle activity was observed in this area, general existing stand conditions, and make recommendations to minimize future bark beetle impacts.

Eastside Forest Health Project

The Peaks RD is proposing to non-commercially thin a total 160 acres of ponderosa pine forest within the larger Eastside Project area. The Eastside Project area is located in the wildland urban interface (WUI) zone surrounding the City of Flagstaff and the communities of Timberline, Doney Park, and Cosnino in Coconino County. The total project includes mechanical thinning (3,800 acres), hand thinning (3,400 acres), and prescribe burning (12,300 acres). The primary objectives for this thinning are to improve forest health, reduce dwarf mistletoe, improve stand and individual tree resilience and vigor, reduce risk of catastrophic wildfire, and improve vegetative species diversity.

The 160 acres proposed for non-commercial thinning are adjacent to private property boundaries in Timberline and Doney Park. These areas were identified by the Summit Fire Department and Peaks RD as areas of concern because a number of stands, which were not proposed for commercial treatment due to the open nature of the stand and accessibility problems, still contained denser clumps of trees that could pose a fire hazard to adjacent private properties. Thinning of these 1 to 30-acre clumps would be undertaken in collaboration with the Summit Fire Department to educate and encourage residents in the communities to thin their property and make their homes fire safe and increase residual tree vigor.

Proposed treatments include non-commercial thinning of ponderosa pine up to 12 inches in diameter; resulting in a residual basal area of 40 to 50 ft^2/acre. Activity slash will be rough piled and burned at a later date. The proposed non-commercial thinning along with associated activity slash treatments would reduce the Fire Regime Condition Class for the treated sites from a Condition Class 3 or 2 to a Condition Class 1.

I conducted a walk through survey of potential treatment areas adjacent to the Timberline subdivision to observe bark beetle activity and general stand conditions. These areas have experienced high bark beetle-caused mortality over the past few years and are currently experiencing moderate bark beetle activity (***Figure 1***). Currently-infested pines were observed to have both *Ips* species (*I. pini*, *I. calligraphus*) and western pine beetle (*Dendroctonus brevicomis*). The stands to be thinned range from moderate to dense tree stocking levels. Trees

are mostly ponderosa pine saplings to small blackjacks (4 to 12 inch diameter) with scattered larger pine in the overstory. Most of the proposed treatment areas are located in the ponderosa pine/pinyon-juniper transition zone, which is characterized by drier sites and poorer soils.

The proposed project will increase both individual tree and stand health with residual trees being more resilient against attack from bark beetles and environmental stresses. Thinning around large yellow pines will reduce competition with smaller trees. The opening of tree canopies and the reduction of fuel ladders will reduce the risk of future crown fires.

Figure 1. *Forest stand conditions and bark beetle activity within the Eastside Forest Health Project area near the Timberline Subdivision, Flagstaff, AZ. Densely stocked ponderosa pine stands occur in clumps throughout the project area (left), and ponderosa pine currently infested with pine engraver beetles (*Ips pini, I. calligraphus) *(right).*

Recommendations

The proposed project area for non-commercial thinning treatments will help to reduce the overall susceptibility of stands to bark beetle attack in the long term as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. If limited funding is available, I recommend that priority be given to areas adjacent to the Timberline subdivision as these areas contain more dense clumps of ponderosa pine, are currently experiencing moderate levels of bark beetle activity, and will act as a demonstration project to neighboring private landowners. The Environmental Assessment for the Eastside Fuels Reduction and Forest Health project has been completed and a signed decision is expected to occur in November 2006.

High stand density reduces both individual tree and stand vigor and therefore increases stand susceptibility to mortality from bark beetles. Over the past several years the Coconino NF has seen high levels of ponderosa pine mortality, particularly in the ponderosa/pinyon-juniper transition zones that is characteristic of the proposed treatment areas. Excess competition from smaller trees has also greatly increased the mortality risk of scattered large yellow pine. Also,

continuous interlocking crowns and well-developed fuel ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Thinning from below has been experimentally demonstrated to increase the resistance level of the residual mature pine overstory (Feeney, et al., 1998). Thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as site quality and precipitation. Careful monitoring of beetle populations associated with these thinning projects should be implemented. Parker (1991) provides guidelines for minimizing pine engraver beetle impacts associated with thinning treatments, such as thinning during periods of bark beetle flight inactivity.

Prevention funds may be available for FY 2007 from Forest Health Protection to implement projects related to forest health and bark beetle activity in these projects sites. Requests for these funds should be submitted no later than October 13, 2006.

If you have any questions regarding my assessment of current bark beetle activity within the proposed project areas or my recommendations, please let me know.

/s/ Joel D. McMillin
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References Cited

Feeney, S.R., T.E. Kolb, M.R. Wagner, and W.W. Covington. 1998. Influence of thinning and burning restoration treatments on pre-settlement ponderosa pines at the Gus Pearson Natural Area. Canadian Journal of Forest Research 28: 1295-1306.

Parker, D.L. 1991. Integrated pest management guide: Arizona five-spined Ips, *Ips lecontei* Swaine, and Pine engraver, *Ips pini* (Say), in ponderosa pine. USDA Forest Service, Southwestern Region, R-3, 91-8. 17 p.